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BEFORE THE  
STATE OF WISCONSIN  
DIVISION OF HEARINGS AND APPEALS

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Application of the U.S. Army Corps of	)	
Engineers for Water Quality Certification	)	
for Construction and Operation of an Expanded	)	Case No. 3-LM-95-616
Confined Disposal Facility in Green Bay,	)	
Brown County, Wisconsin	)	

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FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

Pursuant to due notice hearing was held August 26-30 and September 10, 1996 at Green Bay, Wisconsin, Jeffrey D. Boldt, administrative law judge (the ALJ) presiding.

The United States Army, Corps of Engineers, Detroit District, Box 1027, Detroit, Michigan, completed filing an application with the Department of Natural Resources for water quality certification pursuant to Section 401 of the Federal Clean Water Act and Chapter NR 299, Wis. Admin. Code. The applicant proposes to construct a 126 acre addition to an existing 55 acre confined disposal facility (CDF) located in Township 24 North, Range 21 East, Brown County, Wisconsin. The addition would consist of about 8,000 feet of rock dike sealed with a bentonite-cement slurry cutoff wall. Effluent from the facility would pass through weirs and sand filter cells before being discharged into the waters of Green Bay. Only dredge material generated by a mechanical dredge plant would be placed in the proposed facility.

The proposed facility would be located in the waters of Green Bay, 2750 feet east of the Green Bay Harbor entrance channel immediately north of the existing confined disposal facility. The facility would be situated on submerged lands originally granted to Brown County by the State of Wisconsin in 1986. The submerged lands grant was reauthorized in 1995.

The Department of Natural Resources issued a Notice of Determination of Water Quality Certification which stated that the certification would be conditionally granted 30 days from the date of publication of the notice unless a hearing was requested. The Department set numerous conditions as part of the certification, including issuance of a Wisconsin Pollutant Discharge Elimination Discharge System (WPDES) permit which is not a part of the instant proceeding.

The parties submitted written briefs and the last brief was received May 5, 1997.

In accordance with secs. 227.47 and 227.53(1)(a), Stats., the PARTIES to this proceeding are certified as follows:

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#### FINDINGS OF FACT

1. The U.S. Army Corps of Engineers (COE) is responsible for a navigation project in the waters of Green Bay (the Bay) which consists of an outer channel approximately 11 1/4 miles long, 300 to 500 feet wide and 26 feet deep. From Grassy Island in the Bay, the project has a channel 24 feet deep to a point in the Fox River 1,700 feet upstream of the Chicago and Northwestern Railway Bridge, and 18 feet deep to De Pere. There are three turning basins: the first, 24 feet deep at the mouth of the

East River; the second, 20 feet deep upstream of the Chicago and North Western Railway Bridge; and the third, 18 feet deep at De Pere.

2. The Green Bay Harbor must be dredged on a regular basis in order to continue to function as a commercial port. Dredging projects are regulated under sec. NR 347, Wis. Admin. Code.

3. It has been estimated that 400,000 cubic yards of dredge material annually will be needed to be removed from the Green Bay navigation channel in order to maintain industrial and commercial navigation in the channel. The COE is currently behind on its congressional dredging mandate by an estimated one to one and one-half million cubic yards of dredge material.

4. The COE proposes to construct a 126 acre expansion to an existing 55 acre confined disposal facility (CDF) in Green Bay. The expansion would consist of approximately 8,000 feet of rock dike sealed with a bentonite-cement slurry cutoff wall. The expansion will be attached to the north wall of the existing facility, which will require that the common wall be raised four feet above present height. (Exhibits 7 and 8)

5. The COE will use mechanical dredging methods to remove sediment from the navigation channel and would place it into the CDF facility. Solids would be allowed to settle from the water inside the facility.

6. The proposed CDF would also contain a water treatment system. The treatment system would be located within the CDF dikes, adjacent to the southeast dike wall. The treatment facility would consist of three filter cells, two connector cells, and a collecting or monitoring chamber and pipe. Water would enter the filter cells via weirs, flow downward through the filter sand, collect in the effluent chamber and discharge via a pipe extending through the outer dike wall. The treatment system and direct discharge of effluent is the subject of a separate WPDES permit request. This proceeding relates solely to the request for water quality certification under sec. NR 299, Wis. Admin. Code.

7. The dike walls will be made practically impermeable by construction of a slurry wall in the dikes. The CDF is designed to be watertight. Water discharged from the facility would first pass through the treatment system. Proposed details of dike design include a top elevation of 14 feet above low water datum (LWD) with a dike base at an average elevation of 7 feet below LWD, for an average dike height of approximately 21 feet. The base of the facility is proposed to be built directly on the very stiff to hard clay and silts. The exterior dikes are intended to serve as both physical and hydraulic barriers to the loss of fine-grained dredge materials and associated contaminants. The dikes are proposed to have a crushed limestone core, with multiple layers of cover stone for protection from waves and high water levels. When the core has been placed 8 feet above LWD, a cement bentonite slurry wall is proposed to be placed through the dike to the underlying clay soils. Following slurry wall placement, the limestone core and mattress stone would be placed to a design elevation of 12 feet above LWD. The cutoff wall would be continued by cutting a trench to the top of the slurry wall and backfilling of the dry bentonite-sand mixture.

8. Three weirs are included in this proposal. These weirs would be utilized to control water levels in the CDF, detention time within the CDF and outflow to the filter cells. Each weir leads to a filter cell, controlling the inflow to the cells as well as the detention time in the facility. The detention time of dredge spoils will be manipulated by adjusting the filtration cells' weirs to a height which would contain the full volume of water and sediment. Once the solids have settled, the weirs would be lowered and the water would enter the filtration cells.

9. The vast majority of water in the CDF will be Bay water entrapped during construction which is displaced by the sediment. Material to be deposited into the proposed facility will be dredged from the federal navigation channel in the Green Bay Harbor pursuant to permitted dredging.

10. The expanded CDF would be located in Green Bay, 2,750 feet east of the Green Bay Harbor entrance channel and immediately north of the existing confined disposal facility. The CDF would be located in the waters of Green Bay southeasterly from the navigation channel and southerly from the north line of Brown County. (See: sec. NR 104.24(5), Wis Admin. Code)

11. The CDF would be situated on submerged land in Lake Michigan granted to Brown County by the State of Wisconsin in 1986. See: 1985 Wisconsin Act 185 and 1995 Wisconsin Act 133. This was a grant specifically for the CDF, a previous grant having been made for the presently existing facility known variously as Renard Island or Kidney Island because of its shape. See Chapter 15, Laws of 1977. Brown County is a municipality within the meaning of sec. 30.05, Wis. Stats.

12. On December 23, 1993, COE filed an Application with the Wisconsin Department of Natural Resources (DNR) for water quality certification pursuant to 33 U.S.C. sec. 1341 and Wis. Admin. Code, Chapter NR 299 for expansion of the existing CDF in Green Bay. The DNR requested additional information regarding the application and such information was provided by COE to the DNR on March 22, 1995. On April 8, 1995, DNR determined that the DNR would require water quality based requirements in connection with the proposed discharge. Finally, the DNR issued its Notice of Water Quality Certification on September 13, 1995 granting water quality certification for the proposed CDF expansion subject to the following nine conditions:

(a) Any effluent discharge from the facility shall comply with limitations set forth in the Wisconsin Pollutant Elimination Discharge System (WPDES) permit #WI-0044792-3.

(b) The facility shall receive only material generated by mechanical dredge plants. Hydraulically generated dredge spoils shall not be disposed of in this facility.

(c) The facility will be equipped with a discrete sampling point in the form of an effluent chamber to receive filtered water prior to discharge.

(d) Samples shall be collected from the effluent chamber and analyzed in compliance with the monitoring requirements contained in WPDES permit #WI-0044792-3.

(e) During construction, the bentonite-concrete slurry cutoff wall will be tested for integrity pursuant to specifications contained in Section 2A pages 2A-7 through 2A-9 of the U.S. Army Corps of Engineers Solicitation number DACW 35-86-B-00.

(f) Prior to initial use, a dye test to assure that the facility is effectively sealed shall be completed pursuant to the specifications contained in Section 2A, pages 2A-7 through 2A-9 of the U.S. Army Corps of Engineers Solicitation number DACW 35-86-B-00.

(g) The Corps of Engineers shall comply with all provisions and conditions of the exemption from solid waste licensing that was issued to the Brown County Board of Harbor Commissioners on May 11, 1987.

(h) The Corps of Engineers shall provide to the Department prior to initial use of the proposed facility an operation and maintenance manual that addresses:

- 1) A filter cell inspection and maintenance schedule which includes methods to determine if the sand has reached its filtering capacity and which identified the method to replace or rejuvenate the filter sand;
- 2) An inspection and maintenance schedule for the clay wall surrounding the waste water treatment system;
- 3) Guidance for techniques on flapgate operation along with maintenance procedures;
- 4) Contingencies for dealing with overflows from the settling facility into the effluent chamber in cases where the flapgate will not open or the filters become clogged;
- 5) Names and telephone numbers of emergency contacts at the U.S. Army Corps of Engineers and the Department of Natural Resources;
- 6) A contingency plan which specifies the responsibility and details to handle clean-up and repair should the facility be subject to catastrophic failure in the future.

(i) The Applicant must allow the Wisconsin Department of Natural Resources reasonable entry and access to the project site to inspect the project for compliance with the certification and applicable laws.

13. The Notice of Determination of Water Quality Certification contained a determination that water quality certification is a Type IV action under NR 150.03, Wis. Admin. Code. Type IV actions do not require the preparation of either an environmental impact statement nor an environmental assessment. Therefore, the DNR has complied with the procedural requirements of sec. 1.11, Wis. Stats.

14. All information necessary for associated permits, such as for the WPDES permit under Ch. 147, Wis. Stats., was submitted to the DNR by the COE in March of 1995. (TR, p. 1077)

15. The Notice of Determination of Water Quality Certification was dated and mailed to interested parties on September 13, 1995. The Notice of Determination of Water Quality Certification was published on September 30, 1995.

16. On October 27, 1995, a REQUEST FOR HEARING UNDER sec. 227.42, Stats. (the Petitioner) was filed by 12 individuals (the Petitioners), requesting a contested case hearing on the DNR's decision to grant conditional water quality certification for the CDF.

Pursuant to due notice, a prehearing conference was held at Green Bay, Wisconsin, on February 22, 1996. The COE failed to appear at said prehearing conference and failed to raise the issue of any legal requirement to complete the hearing within one-year of receipt of a complete application. This issue was, accordingly, waived by the failure of the U.S. Army Corps to raise it in a timely manner.

17. The following activities associated with the proposed CDF expansion were assessed by the DNR for their potential to impact the surface waters located in Green Bay and the lower Fox River:

- (a) Construction of the facility;
- (b) Reintroduction of contaminants due to seepage through the walls of the facility;
- (c) Reintroduction of contaminants via the outfall of the facility; and
- (d) Redistribution of in-lake contaminants as a result of hydrodynamic changes caused by the enlargement of the existing manmade island.

18. The dike and cutoff wall construction would be observed and monitored by a contractor and COE personnel using various observational and testing methods, including locational surveys, elevation measurements, materials tests, cement/bentonite slurry quality and injection tests, tests performed on the sections of the cutoff wall and monitoring and performance tests. In addition, the DNR has granted a conditional exemption for solid waste licensing requirements. A number of the conditions to the exemption for the proposed CDF expansion include requirements for approval of plan sheets and diagrams and design details, spill control plans with measures and procedures to be taken by site users in Brown County to prevent and contain losses of fuels, lubricants, construction materials, and dredge materials at the facility during and after construction. In addition, construction requirements take into account operational and maintenance requirements of both COE and DNR

requirements. A detailed construction sequence of the limestone core, cutoff wall and protective rock layers are all required for the construction of the CDF. One condition of the solid waste exemption includes a narrative that details construction methods that assure the cutoff wall interconnects would achieve a permeability equivalent to or lower than the slurry cutoff wall. The construction report requires documentation of the contractor's prior experience with slurry cutoff walls and construction as well as construction methods.

19. The proposed expansion of the CDF will not result in a "discharge" into wetlands within the meaning of NR 103, Wis. Admin. Code. (TR, pp. 1056-1061) The lakebed grant area is open public waters of Green Bay and does not include any wetland area. There are wetlands on or adjacent to the rim of open waters, particularly in the vicinity of Peats Lake west of the mouth of the Fox River. (TR, pp. 1121-1127) DNR Division of Waters Regional Director Ronald Fassbender was persuasive that the diversion of flow westerly as a result of the proposed CDF island expansion will not result in any direct discharge into wetlands in this area. (Id.)

20. The proposed CDF expansion would likely result in a secondary improvement in the water quality of the Fox River and Green Bay by confining existing PCB-contaminated sediments and taking them out of the water system. (TR, p. 1147) However, any removal and confinement of contaminated sediments as a result of dredging would have the same effect. As the DNR notes in its brief, "... it is the navigation channel dredging which would produce this side benefit, not the location at which dredge material will be disposed." (DNR Response Brief, p. 4) Unlike on-shore disposal, location of the CDF storage facility in the public waters of Green Bay will result in some trace amounts of PCB contaminated sediments re-entering the water system through the effluent. However, the net effect of the proposed expansion would be beneficial as it relates to containment of contaminated sediments, and would remove PCBs that currently exist in the system with an efficiency of approximately 99.9 percent. (Id., Ex. 100)

21. A previous application for water quality certification was made by the COE in 1987. An Order denying water quality certification was entered on August 17, 1988. An appeal was made to then DNR Secretary Besadny. Secretary Besadny upheld denial of water quality certification by Order dated February 27, 1989.

After the denial of water quality certification, an advisory body referred to as a Technical Review Panel ("TRP") was established to provide technical oversight, review and guidance for a study of the Bay conducted by the U.S. Army COE Waterways Experiment Station (WES). The TRP was responsible for "a) providing technical review and guidance concerning work program and execution and results, b) review of interim documents as work proceeds, and c) providing written comments following meetings and in response to request for review of interim study documents" (Ex. 4, p. A1). Four meetings were proposed during the course of the study: a project initiation meeting, a first progress meeting, a second progress meeting and a final report meeting (Ex. 4, p. A1). The members of the TRP were Dr. Keith Bedford, Ohio State University; Dr. David Lam, Environment Canada National Water Research Institute; Dr. Kwang W. Lee, University of Wisconsin-Milwaukee; Dr. Steven McCutcheon, U.S. Environmental Protection Agency; and Mr. Dale Patterson, WDNR. (Ex. 4, p. 8) All members of the TRP except Dr. Lam testified at hearing.



22. From a hydrodynamic standpoint, processes influencing the water current patterns and transport of pollutants within the lower bay, should the CDF be expanded, include: long-term lake water level fluctuations; river discharges; seiche action; and wind speeds and directions. The Fox River is the largest river draining into the lower bay. The East River, the second largest river in the area, joins the Fox River in the City of Green Bay. East River flow rates are approximately 5 percent of the flow measured in the Fox River. Green Bay water levels are dependent on annual and seasonal variations in precipitation within the Lake Michigan/Lake Huron drainage basin and also on the regulated discharge exiting Lake Superior. There are seasonal variations in water levels, which are generally lowest in mid-winter and continually rise during the first half of a year reaching peak water levels in early to midsummer.

(Ex. 4, pp. 10-13)

23. In general terms, the hydrodynamic model (HM) is used for understanding and estimating water current patterns in the lower bay. This information is subsequently input into the water quality model (WQM) in an effort to predict impacts upon specific water quality constituents, such as dissolved oxygen. The hydrodynamic model supplies a description of the flow regime that drives the water quality model. (TR, p. 409)

There is no dispute in the record that the numerical hydrodynamic model CH3D (Curvilinear Hydrodynamics in Three Dimensions) is a state-of-the-art model which provides detailed hydrodynamic flow field information for input to the water quality model. The basic CH3D model was further modified in its application to a study of Chesapeake Bay. Dr. Lee criticized the difficulty in adapting a model developed for ocean conditions on Chesapeake Bay to the fresh waters of Green Bay. However, Dr. McCutcheon was persuasive that the Chesapeake Bay model had been used at over 10 other sites around the country and that appropriate changes were made in inputs that made it an appropriate model to use for Green Bay. (TR, p. 1743)

The hydrodynamic modeling (HM) took into account physical processes impacting water circulation, including seiche, wind and river inflow, and the effect of the rotation of the earth. (Ex. 4, p. 23)

24. The Water Quality Model (WQM) was also based upon a generalized version developed for Chesapeake Bay. The WQM employs integrated compartment methodology (ICM), which means that conservation equations have been integrated over control volumes. A similar approach has been used by the USEPA. The ICM methodology allows for the linking of the WQM and HM. Dr. Dortch has further developed an "interface processor" that couples the HM and WQM computational grids and processes HM information in WQM input data. In the WES Lower Green Bay Study (the Model or the WES Model), the WQM uses the same grid as the HM, and there is a one-to-one correspondence. (Ex. 4, pp. 74-77) The WQM is also a state-of-the-art, sophisticated model that was appropriately adapted to an understanding of the proposed project on the waters of Green Bay.

25. The central issue in the water quality model is the concentration of dissolved oxygen (DO). DO is necessary to support the life functions of higher organisms, including fish, and is

considered an indicator of the "health" of a water body. DO concentrations are affected by a series of biological and chemical processes, which both supply and utilize DO. The loadings exerted by waste discharges can increase the relative importance of one or more of these processes, resulting in decreases in DO. (Ex. 4, p. 78)

Because the CDF is in close proximity to the Fox River mouth, where high waste loads exit the river, concern exists that the expansion may adversely affect water quality conditions in the lower bay. By modifying current patterns, greater quantities of pollutants may be transported into regions of the lower bay which serve as spawning waters.

Waste loads entering lower Green Bay via the Fox River can be attributed, in part, to seven major point source discharges releasing treated industrial and municipal wastes below the De Pere Dam. Additional loadings can be attributed to effluent discharged upstream of the dam. Five papermills and/or packaging plants and two public wastewater treatment plants discharge into the 7.3-mile reach of the Fox River between its mouth and De Pere Dam. Both the lower Fox River and lower bay exhibit eutrophic conditions during much of the summer; these systems can be characterized by elevated nutrient and algal concentrations as well as low seiche depths. Furthermore, dissolved oxygen data measured in regions of the lower bay contain measurements where concentrations were regularly but briefly lower than the State of Wisconsin water quality standard for dissolved oxygen (i.e. 5 mg/L) in the summer months. (Id., p. 1)

26. While the HM and WQM modeling itself is world-class, the data driving the model is of fair to poor quality at best. It is also out of date. (Dr. Lee Ex. 301, pp. 7-11) The bulk of the data driving the COE models was collected in the late 1970's and early 1980's. This data was used by the DNR to calculate wasteload allocations along the lower Fox and Green Bay. These allocations have been in place for the past decade and have altered the background conditions over which the expansion is being modeled. The conditions which existed when the data was collected 10 to 15 years ago have changed as a result of implementation of the wasteload allocations. (TR, p. 1551) Dr. Kwang Lee, a registered professional engineer and full professor of Water Resources Engineering, is chair of the Department of Civil Engineering and Mechanics at the University of Wisconsin-Milwaukee. He is also Senior Scientist of Great Lake Studies and has had a long-time professional interest in water quality and hydrodynamic modeling for the Fox River and Green Bay. Dr. Lee has published at least nine research projects directly relating to water quality and hydrodynamic modeling issues on the Fox River and in Green Bay. (Ex. 303) In Dr. Lee's professional opinion, without collecting more current data there is not an accurate picture of present day conditions to drive the COE model. (TR, p. 1551-1552)

The applicant argues, somewhat disingenuously, that . . . "Dr. Kwang Lee has gone into a different field since 1984 and has not been involved in work with modeling . . ." (COE Brief, p. 26) Instead, the record indicated that Dr. Lee had been retained by the City of Milwaukee to deal with the problem of cryptosporidium in the city's water supply. Dr. Lee testified that ". . . I was in charge of the investigation, and a lot of modeling and eventually designed a new location for water intake," a \$19 million project completed in 1994. (TR, p. 1553-1555) The problem of cryptosporidium in the City of Milwaukee (the City) drinking water supply received world-wide notoriety (Id., p. 1553). The City's confidence in Dr. Lee's professional judgment reflects his preeminence in the field of Water Resource Engineering.

27. Dr. Lee was instrumental in the collection of the data used to run the COE WES Model. All of the out-of-state experts testified that the local experts, Dr. Lee and Dale Patterson, had the best understanding of the limits of relevant available field data. (TR, p. 1744) In the early 1980's Dr. Lee provided Mr. Patterson with information relating to current meter and meteorological data and re-sorted data from USGS, the Green Bay Metropolitan Sewerage District and UW-Green Bay (TR, pp. 1453-1454) Dr. Lee had overseen collection of this data and was well aware of problems and gaps in this data, including a battery malfunction in a current meter and human error by a diver. (TR, pp 1457-1459) Dr. Lee opined that this data was sufficient in 1982, but is out of date and inadequate for 1996. (TR, p. 1461) The same data drives the WES Model in predicting existing violations and expected changes after the proposed expansion. However, Dr. Lee opined that "... in any kind of modeling, the immediate past is the best way of gaining confidence in the immediate future." (TR, p. 1672)

Dr. Lee's position is summarized in his prefiled testimony:

In the course of my participation in the Technical Review Panel I became concerned about the validity of the computer model the Corps of Engineers was using to predict whether the proposed expansion will cause violations of water quality standards. Specifically, the data used to calibrate and validate that model are inadequate and outdated. Consequently, to put it simply, I do not believe the model can predict one way or the other whether the expansion will or will not cause violations of water quality standards. (Ex. 303, p. 4)

28. The Model failed to establish its credibility through a confined calibration and verification exercise. (Dr. Lee, Ex. 301, attached Ex. F) The Model results were not able to match a pronounced dissolved oxygen (DO) sag in the lower Fox River which was recorded at the continuous DO monitor from July 14, 1983 to August 17, 1983. To their credit, the COE engineers openly discussed the failure of the Model to account for the DO sag data in their Final Report. (Ex. 4, pp. 136-138) Nonetheless, this represents a serious defect in the calibration of the theoretical model. After considerable hand-waving, the authors adjusted the parameter in the Model for algae production specified directly as  $P_{\max}$  from the initial calibration value of  $3.0 \text{ day}^{-1}$  to  $0.8 \text{ day}^{-1}$ . The study discussed the failure of the model to calibrate as follows:

A major emphasis during the calibration phase of this study was matching the data collected at the continuous DO monitors located along the Fox River. These monitors recorded a DO sag over the whole length of the river beginning around day 196 (July 15) and extending to days 204 (July 23) to 206, depending upon location. After this sag, DO increased to concentrations near or exceeding saturation until roughly day 210. Based on the DO monitor data, it appeared that this behavior was limited to the Fox River since the stations in the bay did not exhibit similar behavior. The sag in DO was not evident at De Pere Dam either, and the amount of sag increased toward the mouth. Several ideas were put forward in an attempt to explain this behavior. Since the sag was confined to the Fox River, it was thought that it may have been the result of large releases of biodegradable material. The point

source loads preceding and during the sag were higher than loads at other times of the calibration but their impact was not enough to cause the observed level of DO depletion. After some investigation, it was determined from the model that DO produced (or not produced) by algae had an appreciable effect on the DO balance of the system.

Other possible causes for the sag were considered. It is possible that toxicity from waste loads could have lowered algal production, thus decreasing oxygen production. Another possible cause of lower algal production may have been an increase in light attenuation as a result of the higher loadings that occurred during the first 10 days of the simulation. Waste loads do increase turbidity, thus increasing light attenuation. One possible cause is wind, where periods of sustained winds from the north can push water into the Fox River, thus impacting flushing rates and DO. Another potential cause is the occurrence of internal seiches that push mid-bay bottom waters with low DO into the lower bay. Review of the data in Patterson (1985) shows that there was DO stratification in the Fox River, especially in the upstream direction, with bottom DO lower than at the surface. However, at Schmidt Dock, no DO stratification was evident, and surface DO values were as low as those observed on the bottom further upstream. The model is compared against surface observations, and there is no mechanism for capturing vertical stratification, since the model is 2D.

Low algal production during the first 10 days of the calibration period is considered to be a reasonable and feasible explanation for the occurrence of the sag. A possible explanation for low algal production follows. Kennedy (1992) indicated that algal production in this system is highly dependent on light availability, which can be impacted by turbidity associated with runoff. This situation is true of other systems. The watershed that drains into the Fox River is predominately agricultural. Thus, turbidity can increase dramatically during summer thunderstorms, even though discharge may not show a significant increase. Rainfall records from the study site indicate 1.64 in. of rain during the period July 11 - July 20, 1983. Following this 10-day period, little rainfall was reported. Therefore, a plausible cause for lower algal production is increased light attenuation resulting from increased non-algal suspended solids, or turbidity, due to rainfall during the first part of the calibration period.

Although light attenuation is related to suspended solids (SS), data were insufficient to model SS. Therefore, the effect of lower algal production was specified directly through  $P_{max}$  (the maximum specific algal production rate), rather than through a light attenuation function dependent on SS. A reduction in  $P_{max}$  from the initial calibration value of  $3.0 \text{ day}^{-1}$  to  $0.8 \text{ day}^{-1}$ , reduced oxygen production and captured most of the sag. Attempts to use a constant

value of  $P_{max}$  in the Fox River throughout the calibration period either over-predicted DO during the sag or under-predicted DO during the period following the sag, depending on whether the higher or lower value for  $P_{max}$  was used. Therefore, the smaller algal production rate ( $P_{max}=0.8 \text{ day}^{-1}$ ) was used for days 194 through 204 in the Fox River only. For the remainder of the calibration period, days 205 through 230, the higher value ( $P_{max}=3.0 \text{ day}^{-1}$ ) was used in the Fox River. The value of  $P_{max}=3.0 \text{ day}^{-1}$  was used in the bay throughout the calibration period. The value of 3.0 was used for all scenario runs. (Ex 4, pp. 136-137)

29. Dr. Lee testified that he was "personally professionally shocked" as a scientist to see a sensitive parameter adjusted to artificially force Model results to match field data. (TR, p. 1576) Dr. McCutcheon testified that Dr. Lee's comments could be attributed to the heat of the moment at the hearing and should not be taken at face value. (TR, p. 1759) However, McCutcheon's recollection was that Dr. Lee had not expressed similar sentiments at the time of the TRP meetings. Dr. McCutcheon's recollection is not supported by the record. Dr. Lee had expressed similar disbelief at the scientific validity of the decision to manipulate Model calibration results back in November of 1992.

Dr. Lee wrote as follows at that time:

"... A serious mismatch of model results at these windows provides warnings to the modelers and indicates hidden problems in the model. Traditionally, modelers have resisted adjusting sensitive parameters in the model to artificially force model results to match field data... Hence, the  $P_{max}=0.8/\text{day}$  was used for the period July 14 to 24, 1983, for the river, and  $P_{max}=3.0/\text{day}$  was used for the bay during the entire period (page 131). Because the model is calibrated as such, it will likely generate a DO sag between July 14 to 24 every year for the future years. The model results obviously cannot be taken seriously after they are manipulated in such a manner." (Ex. 303, Ex. F)

The record supports Dr. Lee's position with respect to the failure of the model to match the previously collected data at the continuous DO monitors on the Fox River. An "expert opinion expressed in terms of possibility or conjecture is insufficient." McGarrity v. Welch Plumbing Co., 104 Wis. 2d 414, 429-430, 312 N.W. 2d 37 (1981). The WES Model study repeatedly refers to the "possibility" that low algal production was the source of the model's calibration failure with respect to the DO sag. The model then develops a "possible" explanation for the low algal production. (Ex. 4, p 137). There is not sufficient support in the record to justify the "possibility" that the DO sag was caused by an increase in light attenuation, and thus a reduction in the production of algae, due to the rainfall runoff conditions in July, 1983. (TR, p. 1577-1585)

30. Significantly, the quality of the data from the continuous DO monitoring station near Kidney Island itself, the area with the most predicted violations of the state water quality standard for DO, was rated by Patterson as being of "fair to poor" quality. (Ex. 4, p. 21) The Model predicted increased numbers of violations of the minimum state DO standard north of Kidney Island. Significant continuous DO monitoring data gaps occurred at the Kidney Island station operated by GBMSD. (Ex.

4, p. 19) The GBMSD station just north of the Kidney station, located at Grassy Island (See: Ex. 7), collected no data during the calibration period. (Ex. 4, p. 19) Patterson rated the quality of the Grassy Island data as "very poor." (Id., p. 21)

31. The TRP did not discuss the central issue in this case, the DO standard, until its final meeting. (TR, p. 1884) As of that meeting, there was a "consensus" among TRP panel members that "the Model has a way to go before there is a comprehensive credibility sufficient to make engineering judgments." (Ex. 319, p. 2) No new engineering work corrected the fundamental problem of the credibility of the model. There were no significant changes in the model itself after the March 24, 1993, consensus. (TR, pp. 444-446) Dr. Lee maintained this position, the consensus opinion, at the time of hearing. Dr. Bedford fudged, saying if he could go back and rewrite his summary of the "consensus" he would change the word "engineering" to "scientific". The other members of the TRP who testified, Patterson and McCutcheon, simply flip-flopped and decided, in their hearing testimony, that the model was sufficient. The record strongly suggests that this change of heart had more to do with concerns over a possible loss of federal funding than anything to do with making good engineering judgments.

32. When William Rito, the COE engineer in charge of the CDF project, received Dr. Bedford's March 24, 1993, correspondence (which included the above language regarding the model not being sufficient to render good engineering decisions), he circulated a memo which included a drawing of a coffin labeled "Green Bay CDF", noting "this letter may be the final nail!" (Ex. 319) When pressed to explain this no doubt embarrassing memo, Rito testified as follows:

" . . . This project, because it meant -- had many obstacles to overcome, time was marching on, I guess the administration was starting to take the budget -- the federal budget was taking -- beginning to take a position that if we didn't get this project built, that federal funds would be pulled or would not be available for it. Because I saw this letter as -- well, may -- I'll take a step back from that last statement. Because we had to go through this Technical Review Panel and the WES Model study at high federal cost -- I don't know exactly what those costs were -- and because the administration was talking about not having any more federal funding and that we might not be able to build this project if there were any more delays, that if time kept going on and we didn't have the 401 or different -- if we didn't keep continuing with the project, that the federal funding would die. I mean, that, you know, we wouldn't have federal funding. And that's why I just saw this as a time delay in the whole process and that federal funding would not be available with another time delay in the project." (TR, p. 196-197)

33. The central issue in this case is whether there is "reasonable assurance" that the proposed tripling of the size of the Renard Isle CDF will comply with State of Wisconsin water quality standards set forth in NR 299.04(1), Wis. Admin. Code. All parties agree that the most critical standard of concern is sec. NR 102.04(4)(a), Wis. Admin. Code relating to protection of waters classified for fish and aquatic life by ensuring the level of dissolved oxygen in such waters.

That standard reads as follows:

(4) STANDARDS FOR FISH AND AQUATIC LIFE. Except for natural conditions, all waters classified for fish and aquatic life shall meet the following criteria:

(a) Dissolved oxygen. Except as provided in par. (e) and s. NR 104.02(3), the dissolved oxygen content in surface waters may not be lowered to less than 5 mg/L at any time.

DNR counsel succinctly stated the issues as follows: "...If the Department correctly applied its water quality standards regarding dissolved oxygen, the certification should issue. If it erred, the certification should be denied. Within this issue there are two elements. The first is whether the water quality modeling effort was sufficient to evaluate the impacts on dissolved oxygen by virtue of construction of the CDF. The second is whether the dissolved oxygen standard of 5.0 parts per million would be maintained if the CDF is constructed." (DNR Response Brief, p. 13).

The ALJ finds that the modeling effort does not display "a comprehensive credibility sufficient to make engineering judgments," especially in light of the failure of the model calibration as it relates to the DO sag data. However, in the event this part of the decision is overturned on appeal, it is necessary to reach the second question posed above.

34. Using the maximum waste-load allocations, the water quality model indicated that there can be violations in the minimum DO standards of 5.0 mg/L for short periods of time for both the existing and planned conditions. Most violations were just below 5.0 mg/L and their locations were similar for existing and planned conditions for all scenarios. In seven of the ten scenarios, the cells that had the most violations after the expansion were either adjacent to or the same cell that had the most violations prior to expansion. In all the scenarios, the expansion only slightly changed the number of violations. Expansion did not degrade the DO in the Fox River mouth. A statistical analysis indicated that there was no significant difference in pre- and post-expansion DO violations for four of the five types of DO violation comparisons conducted." (Ex. 4, p. 193) However, there were significant differences in the immediate area of the expanded CDF island.

As stated in the report, the "WQM indicates that the planned CDF expansion should not adversely impact water quality conditions (e.g. DO). The only substantial differences in water quality (between pre- and post-expansion conditions) are in the immediate vicinity of Kidney Island, with the greatest decreases in DO usually along the north face of the island. Differences are due to changes in circulation around the island resulting from the CDF's retaining wall being extended into the open water." (Ex. 4, p. 194)

35. The report states that the "[r]esults from the WQM scenarios were analyzed to determine the temporal and spatial impacts of expansion upon water quality. Analysis of differences in average DO and average tracer concentrations between existing island and expanded island conditions, for all 10 scenarios, indicated that the impacts of expansion were in the immediate vicinity of Kidney Island (mostly north of the island). The locations of the largest decreases in average DO in nine of the

ten scenarios were in cells along the boundary of the expanded CDF . . . Conditions near the island boundary are displaced northward to what was open water prior to expansion. Thus, comparisons of the pre- and post-expansion conditions show differences along the post-expansion boundary." (Ex. 4, pp. 192-193)

36. The DNR argues that existing violations of NR 102.04(4)(a), Wis. Admin. Code are the result of "natural conditions". Section NR 102.03(2), Wis. Admin. Code defines "natural conditions" as the ". . . normal daily and seasonal variations in climatic and atmospheric conditions, and the existing physical and chemical characteristics of a water or the course in which it flows."

The testimony in the record indicated that existing DO violations are principally caused by two factors: 1) non-point source pollution, especially stormwater runoff. (TR, p. 1254) 2) existing point source permits, which use up all of the permissible available DO allocations. (TR, pp. 726-727 and Ex. 319) There are currently violations of the DO standard in the waters of Green Bay. Many of these occur because of the effects of "natural conditions" within the meaning of sec. NR 102 03(2), Wis. Admin. Code. (TR, pp. 1170-1173) However, the WES Model predicts that the proposed expansion will result in a greater number of DO violations than if the island were not expanded. The expansion of the island, rather than "natural conditions," would be the cause of the increased number of violations. Under these circumstances, it would be stretching credibility to hold that the predicted increase in DO standard violations are the result of "natural conditions" within the meaning of sec. NR 102 03(2), Wis. Admin. Code.

A clear preponderance of the credible evidence indicates that the projected increase in DO standard violations in and around the project site area would not be caused by "natural conditions", but would be as a result of expansion of the CDF facility.

37. There is not "reasonable assurance" that the proposed project will meet the state water quality standard for DO. This conclusion is based upon the poor quality of calibration data in and around Kidney and Grassy Islands (Findings 27, 30), the failure of the model to match the observed results along the Fox River (Findings 28, 29), the fact that violations of water quality standards for DO currently are predicted by the model and that the model predicts even more violations of the DO standard after project expansion and that these predicted violations are not reasonably attributed to "natural conditions." (Finding 36) Instead, the record supports the "consensus" opinion of the TRP after its last meeting that ". . . the model has a ways to go before there is a comprehensive credibility sufficient to make engineering decisions." (Ex. 319, p. 2)

38. The predicted increase in DO standard violations as a result of the proposed expansion was thoughtfully analyzed by Dale Patterson, a DNR Engineer and Water Resource Modeling Unit Supervisor. Patterson drafted a memo dated September 14, 1993, which considered in detail whether the predicted increase in DO violations should result in denial of the proposed expansion. (Ex. 202). This Patterson memo was widely circulated within the DNR. (TR, pp. 1186-1190).

Patterson was persuasive in both his memo and hearing testimony that the predicted number of increased DO violations would not exceed the permissible range of 0.274 percent identified in Sec.



DNR 102.05(2)(b), Wis. Admin. Code. (TR, pp. 1170-1173). The model predicted an increased incidence of DO falling below 5.0 *ppm* to be approximately 5 days for every 5 years. (TR, pp. 1190-1194). Patterson testified that the number translates almost exactly to the permissible level identified in NR 102.05(2)(b). Accordingly, assuming that the model had sufficient credibility to make engineering judgments, the predicted number of violations would not be sufficient to warrant denial of water quality certification.

39. The Environmental Decade provided expert testimony, from Thomas Erdman, the long-time Curator of the Richter Museum of Natural History at the University of Wisconsin Green Bay, which indicated that CDF expansion will have a detrimental impact on endangered resources. (Ex. 301; TR, pp. 1292-1373)

In cooperation with US Fish and Wildlife and DNR personnel, Erdman has studied the use of the existing island by birds and waterfowl since its construction. Erdman testified that the existing CDF island acts as a "death trap" for a number of avian species, including "two and possibly three state endangered species. . . ." Erdman opined that ". . . (i)ncreasing the size of the island will only multiply the current problems of the uncapped island including attraction of more birds (gulls in particular), uncontrolled vegetation, ponded water creating the potential for botulism, and toxins. The cycle we have seen there will repeat itself on a much larger scale, in my opinion. From a wildlife management perspective, this is a no-win situation. The current consensus is to keep endangered birds away from the site, because it has proven to be a sink for these species." (Ex. 301, pp. 10-11)

40. Based upon the un rebutted expert testimony of Erdman, there is not "reasonable assurance" in the record to make a Finding that the project will comply with sec. 29.415, Stats., relating to the protection of endangered species. No permit authorizing the incidental taking of endangered species has been issued in connection with the proposed project. Under sec. 281.15, Stats., (formerly 144.025, Stats.), state water quality standards are to be interpreted to protect the general public interest in navigable waters. The public interest includes the "propagation of fish and aquatic life and wildlife" as well as "commercial" uses of the water for navigational purposes. *Id.*

41. The U.S. Supreme Court has held that additional conditions and limitations on the activity as a whole are appropriate, once the threshold condition, the existence of a discharge, is satisfied. PUD No. 1 of Jefferson County v. Washington Dept. of Ecology, 511 U.S. 700, 128 L.Ed 716, 728 (1994). There is a "discharge" as a result of island expansion. There is no dispute that in the record the expansion of the facility will lead to more DO standard violations than if the facility were not expanded. Further, creation of the expanded island will permanently alter water current patterns in the Bay. While the County argues that there is no "discharge" in expansion of the CDF, a clear preponderance of the evidence indicates that creation of the facility itself is a "discharge", subjecting the COE to the state's 401 certification requirements. Significantly, the COE admits in its brief that the CDF expansion is subject to 33 C.F.R. 336.1 (COE Brief of 3/26/97, p. 2)

Section 29.415, Stats., relating to the protection of endangered resources is an ". . . appropriate requirement of state law as provided in 33 U.S.C. 1341. . ." within the meaning of sec. NR 294.04(7), Wis. Admin. Code. The harm to endangered resources as a result of the proposed expansion, described at length in the un rebutted expert testimony of Mr. Erdman, directly relates to the

“activity as a whole” of island expansion. In the event the denial of water quality certification is reversed upon appeal, a condition requiring a plan acceptable to the Department relating to the protection of endangered resources should be included in any permit approval.

42. Under Article IX, Section 1, of the Wisconsin Constitution, the State holds all natural navigable water bodies to the ordinary high water mark in trust for the public. See *Wisconsin Water Law, a Guide to Water Rights and Regulations* by Paul G. Kent, University of Wisconsin - Extension (1994), pp. 9-10. Public rights protected under the doctrine include commercial and recreational navigation, fishing and hunting, swimming, enjoyment of natural scenic beauty and other recreational enjoyment on water or ice. *Id.* The Constitutional protection of public waters and the interpretation of these provisions by the judicial branch of government through the appellate courts is known as The Public Trust Doctrine. The Public Trust Doctrine . . . “requires the state not only to promote navigation but to protect and preserve its waters for fishing, hunting, recreation and scenic beauty.” WED v. DNR, 85 Wis. 2d 518, 526 (1978).

The Environmental Decade argues that the Public Trust Doctrine governs, and that the substantial body of case law interpreting the “public interest in navigable waters” applies to, the decision on water quality certification. In particular, the Decade argues that the provisions of the Wisconsin Constitution at Article IX, Section I, and interpreting case law supersede the statutory exemption from Chapter 30, Stats., requirements for municipally owned submerged shorelands set forth in sec. 30.05, Stats.

That section provides as follows:

**Applicability of Chapter to Municipally Owned Submerged Shorelands.**

Nothing in this chapter relative to the establishment of bulkhead or pierhead lines or the placing of structures or deposits in navigable waters or the removal of the materials from the beds of navigable waters is applicable to submerged shorelands in Lake Michigan, the title to which has been granted by the state to a municipality. Sec. 30.05, Stats.

There is no dispute that the title to the bed of Green Bay on which the CDF expansion is to occur was granted to Brown County by 1985 Wisconsin Act 185, as amended by 1995 Wisconsin Act 39. Brown County is a municipality within the meaning of sec. 30.05, Stats.

As required by sec. 13.097(2), Stats., the DNR prepared a report (the Report or the DNR Report) on the legislation authorizing the conveyance of the public lakebed area to Brown County. (Ex. 111) The Report complies with the procedural requirements of sec. 13.097(4), Stats. That statute does not provide for a right to a contested case hearing challenging the Department’s Findings with respect to whether conveyance of the lakebed complies with “public trust purposes” as defined in sec. 13.097, Stats. The DNR Report was prepared by the Bureau of Water Regulation and Zoning and is dated April, 1994. A cover letter transmitting the Report to the Legislative Reference Bureau is dated April 28, 1995. 1995 Wis. Act 39, authorizing the lakebed conveyance was effective August 24, 1995.

43. The ALJ made a provisional ruling at the time of hearing that the Division was bound by the lakebed grant pursuant to sec. 30.05, Stats., but allowed the parties to submit briefs on whether the Division had jurisdiction over Public Trust Doctrine issues. (TR, pp. 1286-1292; 1308-1310) The issue of the adequacy of the DNR's Report on conveyance of the Lake Michigan lakebed to Brown County was not referred to the Division of Hearings and Appeals for a contested case hearing in either 1995, nor in conjunction with the instant request for water quality certification. Accordingly, the Division ALJ does not have jurisdiction to review the DNR Report relating to Public Trust Doctrine issues. For purposes of this hearing and decision, the DNR and the Division ALJ were bound by the act of the legislature taking the proposed project area outside of public trust waters protection.

Administrative agencies do not have the power to declare unconstitutional the laws which they are empowered to enforce. Martinez v. DILHR, 165 Wis. 2d 687 (1992); Milwaukee v. Wroten, 160 Wis. 2d 207 (1991). Since constitutional challenge can be part of a Ch. 227 review, the parties must raise the constitutional challenge at the administrative level and must develop the record adequately for judicial review. See: Omernick v. Dept. of Natural Resources, 100 Wis. 2d 234, 248. Pursuant to controlling case law, the Environmental Decade was allowed to make a record on Public Trust Doctrine issues even though the Division lacked jurisdiction to rule on Public Trust Doctrine issues relating to the legislative grant under sec. 30.05, Stats., or the Department Report required by sec. 13.097, Stats.

44. Some of the evidence, admitted in the form of an offer of proof, raised serious questions about the Report's Findings as they relate to Public Trust issues. For example, the Department found that "... (t)he area involved in this grant is know (sic) to be valuable fish and wildlife habitat . . . . Future use and development of the island as a wildlife refuge may ameliorate some of the impacts on natural scenic beauty and wildlife habitat." (Ex. 111, p. 2) The un rebutted expert testimony of Erdman directly contradicts this Finding.

Further, the Department's Finding in its Report relating to the loss of a substantial portion of public trust waters is difficult to reconcile with public trust doctrine cases such as Hixon v. PSC, 32 Wis. 2d 608, 632-33, 146 N.W.2d 577 (1966). In Hixon, the Wisconsin Supreme Court held as follows:

There are over 9,000 navigable lakes in Wisconsin covering an area of over 54,000 square miles. A little fill here and there may seem to be nothing to become excited about. But one fill, though comparatively inconsequential, may lead to another, and another, and before long a great body of water may be eaten away until it may no longer exist. Our navigable waters are a precious natural heritage; once gone, they disappear forever.

The CDF does not involve a "little fill." It will accept dredge spoils for approximately three years. After this period, the CDF represents the disappearance, "forever," of a "precious natural heritage" on a grand scale. This fact was forcefully developed in the record by the testimony of a member of the public, Mr. Justin Miller. Miller noted that the 126 acres of Bay waters lost was bigger than a northern Wisconsin lake he had enjoyed for years. (TR, p. 992)

The Division ALJ does not have authority to rule that the act of the legislature in granting this huge area of public trust waters to the County violated the public trust doctrine. Any determination in that regard is left to the judicial branch of government.

45. The applicants have not demonstrated that the proposed project would protect the general public interest in the propagation of fish and aquatic life and wildlife including protected and endangered species making use of the proposed expanded CDF island.

46. The applicants have demonstrated that the proposed dredging of the public waters of Green Bay would serve the general public interest in "commercial" and other ship and boat traffic in and out of Green Bay harbor. However, the dredging of the channel and disposal of contaminated sediments elsewhere would have the same effect.

47. There is reasonable assurance that no other discharge from the CDF will result in a violation of any other standards in sec. 299.04(1), Wis. Adm. Code. (TR, pp. 1202-1203)

48. There is "reasonable assurance" that the discharge from the CDF will not result in violation of any other standards in Chapter NR 102-106, Wis. Adm. Code. (TR, pp. 1202-1203)

#### DISCUSSION

A camel is said to be a horse designed by a committee. The TRP has produced a lopsided camel of a study. The theoretical modeling itself is brilliant, world-class, state of the art. Dr. McCutcheon used the study for a chapter in a Water Quality Modeling textbook. Yet the theoretical model failed to establish itself with real world data through the confined calibration and verification exercise. When the theoretical model didn't prove its credibility, the TRP simply "manipulated" the DO sag data in a manner that Dr. Lee described as "shocking" to him as a scientist.

Dr. Bedford provided a candid critique of the work of the TRP in the March 24, 1993 letter to Mr. Butler.

What I am personally concerned about with the TRP is how disconnected the TRP was from the real world issues surrounding it. This isolation relegated us to a collection of people who, because we had no organized or rational connection to the total problem, had no recourse but to bring our own biased and often irrelevant (for the issue at hand) personal approaches to this deliberation. We were doomed to failure (as a group) from the beginning. We were never given any history of the prior modeling or their points of dispute; we were never apprised of prior legal activities until well into the second meeting; we didn't discuss the hearing examiner's criteria until the third meeting; we didn't fully discuss the DO allocations and their determination, in fact, it was specifically mentioned that this was not a concern of the TRP. We weren't allowed to discuss the design or configuration of CDF and the on-going RAP; we didn't discuss the issues concerning the heavily polluted sediments. In short, we were quite cut-off from all the issues that helped define the modeling predicament we found

ourselves in. My impression is that this modeling exercise was the end product of a series of flawed discussions and decisions. To my mind, the answer to the Green Bay CDF problem lays not in anymore modeling exercises but in rediscussing and renegotiating the decisions that led to this exercise. This modeling exercise, no matter how well done, will never remedy the true roots of this problem. (Ex. 319, p. 4)

Dr. Bedford concluded as follows:

With regard to how these results are used, they are in one sense, all useless. All the available DO allocation has been consumed by the existing permit allocation. The best the model can do is show no disruption, or a zero change. Even round-off error will incur a change sufficient to violate the DO standard. We have asked these calculations to do something that no model can do, that is, predict zero (i.e. no change) So, in my mind, if we are asked to adhere to a legalistic, black-and-white criteria based upon changes relative to present DO allocations, then the CDF will fail the test. If we are asked to ignore the legal/permitting aspect and adhere to a subjective interpretation, than (sic.) the model shows little if any disruption for its defined zone of relevance. (Id., p. 3)

To some degree, Dr. Bedford overstates the legal requirements under Wisconsin law. The regulatory scheme allows for an allowable " . . . level of nonattainment of the dissolved oxygen criterion of one day per year." Sec. NR 102.05(2)(b), Wis. Admin. Code. Perhaps not coincidentally, the WES Model results predict "almost exactly" five increased days of DO standard violations over five years as a result of project expansion. However, Dr. Bedford's candid comments do provide an important context into which to place the WES Model results. There is no margin for error, because there are already existing violations of the DO standard.

Under these circumstances, the failure of the Model to predict the DO sag and to calibrate with real-world data is particularly significant. The record did not support the "possible" explanation, one of many discussed at length in the WES study, which was used to change the numbers in the Model to make it fit with real-world data. Dr. Lee's 1992 comment that, " . . . the Model results can not be taken seriously after they are manipulated in this manner. . ." is appropriate.

Nor did the record reveal sufficient justification for the change of heart of TRP members, who in their last meeting had agreed that the Model did not have a sufficient credibility to make engineering judgments. Mr. Butler testified that, after this consensus, " . . . We did not change anything that we did . . . We did a better job of explanation." (TR, p. 446) The CDF expansion would leave a permanent mark on the waters of Green Bay. Given that there is no margin for error, the TRP "consensus" that " . . . the Model has a way to go before there is comprehensive credibility to make engineering decisions . . ." must be given great weight.

Brown County argues that the CDF expansion is not a "discharge" into the waters of Green Bay. However, the record was undisputed that there will be more violations of the State DO standards after expansion than before. This is not a "passive structure," as the County argues, but an enormous change in the composition of Green Bay. Significantly, the COE conceded jurisdiction in twice

applying for State water quality certification. The COE likewise conceded that the facility is subject to 33 C.F.R. § 336.1 in its brief. The U.S. Supreme Court has held that sec. 401(d) is most reasonably read as authorizing additional conditions and limitations on the "activity as a whole" once the threshold condition, the existence of a discharge, is satisfied. PUD No. 1 of Jefferson County v. Washington Dept. of Ecology, 511 U.S. 700, 128 L.Ed. 716, 728 (1994).

Given that there is a "discharge," the ALJ must review the "activity as a whole" to determine if any other applicable provision of State law applies. PUD at p. 728. Both sec. 281.15, Stats. (formerly sec. 144.025, Stats.), the legislation authorizing NR 299, Wis. Admin. Code (the Code), and the Code itself repeatedly refer to the "propagation of fish and wildlife" as a central purpose of water quality certification. Accordingly, the ALJ finds that sec. 29.415, Stats., relating to the protection of endangered resources is an appropriate provision of State law related to the "activity as a whole" of CDF expansion. The un rebutted expert testimony of Mr. Erdman from UW - Green Bay is dispositive in demonstrating that the project proponent has not shown compliance with sec. 29.415, Stats., relating to the protection of endangered resources.

#### CONCLUSIONS OF LAW

1. The Division of Hearings and Appeals (the Division) has authority to hear contested cases and issue necessary Orders related to the Wisconsin Water Quality Certification Law pursuant to sec. 227.43, Stats., and sec. NR 299.05(6), Wis. Admin. Code.

2. The law of standing in Wisconsin should not be construed narrowly or restrictively. The review provisions of Chapter 227, in particular, are to be liberally construed. WED v. PSC, 69 Wis. 2d 1, 13, 230 N.W.2d 243 (1975). In summary, standing analysis is two-pronged, focusing on 1) the existence of an injury directly attributable to the agency action ("injury in fact"); and 2) a legal determination that the interest injured is recognized and protected by law. *Id*

The petitioners have standing to challenge the issuance of water quality certification which could injure their interest in the public waters of the state. This interest is recognized and protected by law. Sec. 281.15, Stats., Chapter NR 299.05(5), Wis. Admin. Code, Article IX, sec. 1, Wis. Constitution.

3. Chapter NR 299, Wis. Admin. Code, establishes procedures and criteria for the application, processing and review of state water quality certification required by sec. 33 U.S.C. sec. 1341, the Federal Water Pollution Control Act.

4. State water quality standards "shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." 33 U.S.C. 1313(c)(2)(A). In setting standards, the State must comply with the following broad requirements:

"Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational [and other purposes.]" Ibid.

5. States are responsible for enforcing water quality standards on intrastate waters. 33 U.S.C. 1319(a). In addition to these primary enforcement responsibilities, 401 of the Act requires a State to provide a water quality certification before a federal license or permit can be issued for activities that may result in any discharge into intrastate navigable waters. 33 U.S.C. 1341. Specifically, 401 requires an applicant for a federal license or permit to conduct any activity "which may result in any discharge into the navigable waters" to obtain from the state a certification "that any such discharge will comply with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title." 33 U.S.C. 1341(a). Section 401(d) further provides that [a]ny certification shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant . . . will comply with any applicable effluent limitations and other limitations, under section 1311 or 1312 of this title . . . and with any other appropriate requirement of State law set forth in such certification. 33 U.S.C. 1341(d).

6. The U.S. Supreme Court has held that sec. 401(d) is most reasonably read as authorizing additional conditions and limitations on the activity as a whole once the threshold condition, the existence of a discharge, is satisfied. PUD No. 1 of Jefferson County v. Washington Dept. of Ecology, 511 U.S. 700, 128 L.Ed. 716, 728 (1994). The expansion of the CDF results in a discharge to the waters of Green Bay.

Although sec. 401(d) authorizes the state to place restrictions on the activity as a whole, that authority is not unbounded. The state can only ensure that the project complies with "any applicable effluent limitations, under 33 U.S.C. 1311, 1312 or certain other provisions of the Act, and with any other appropriate requirement of State law. 33 U.S.C. 1341(d) Id. The provisions of sec. 29.415, Stats., relating to the protection of endangered resources are an appropriate requirement of state law within the meaning of 33 U.S.C. 1341(d) and NR 299, Wis. Admin. Code. The applicant has not shown that the proposed project will comply with sec. 29.415, Stats.

7. Because the Legislature has granted the public waters of the proposed expansion to Brown County, the Constitutional provisions and case law developed as The Public Trust Doctrine is not "an appropriate requirement of State law" within the meaning of 33 U.S.C. 1341(d) and sec. NR 299, Wis. Admin. Code as they relate to the proposed expansion activity. Administrative agencies have only such powers as are expressly granted to them or necessarily implied and any power sought to be exercised must be found within the four corners of the statute under which the agency proceeds. American Brass Co. v. State Board of Health, 245 Wis. 440 (1944). The Legislature has not expressly granted nor necessarily implied authority to the Division to review lakebed grants under sec. 30.05, Stats., in light of Public Trust concerns.

8. Brown County is a "municipality" within the meaning of sec. 30.05, Wis. Stats.

9. The CDF will be situated on submerged land in Lake Michigan the title to which was granted to Brown County by the State of Wisconsin in 1985 pursuant to sec. 30.05, Stats. This was a grant specifically for the CDF, a previous grant having been made for the presently existing facility known as Renard Island. Pursuant to sec. 13.097, Wis. Stats., the DNR prepared a Public Trust Report attached to the bill which became 1995 Wisconsin Act 39.

The Division does not have jurisdiction to review the DNR Report on Public Trust issues.

10. Because the submerged shorelands were granted to Brown County, the Division does not have authority to apply the Public Trust Doctrine to the proposed project expansion which would occur through the filling of waters no longer held in trust for the public.

11 The Department has authority to take any one of the following actions upon the submission of a complete application for water quality certification:

a) Deny certification for any activity where the Department does not have reasonable assurance that any discharge will comply with the effluent limitations or water quality related concerns or any other appropriate requirements of state law as outlined in s. NR 299.04;

(b) Grant conditionally certification for any activity where the Department has reasonable assurance that any discharge will comply with effluent limitations, water quality related concerns or any other appropriate requirements of state laws outlined in s. NR 299.04; or

(c) Waive certification for any activity which the Department finds will result in no discharge, any wastewater discharge associated within an activity which will be regulated by the permit authority under Ch 147, Stats., or any activity that does not fall within the preview of the Department's authority.

12. An applicant must demonstrate reasonable assurance that the following water quality standards are met in light of a proposed activity resulting in a discharge:

(a) Effluent limitations adopted under sec. 147.04, Wis. Stats., and 33 U.S.C. sec. 1311, for categories of discharges;

(b) Water-based related effluent limitations adopted under sec. 147.04(5), Wis. Stats., and 33 U.S.C. sec. 1312;

(c) Water quality standards adopted under sec. 144.025(2)(b), Wis. Stats., and 33 U.S.C. sec. 1313;

(d) Standards of performance adopted under sec. 147.06, Wis. Stats. and 33 U.S.C. sec. 1316;



(e) Toxic and pre-treatment effluent standards adopted under sec. 147.07, Wis. Stats., and 33 U.S.C. sec. 1317;

(f) Public interest and public rights standards related to water quality, set forth in secs. 30.03, 30.10, 30.11, 30.12, 30.123, 30.13, 30.18, 30.19, 30.195, 30.196, 30.20, 30.202, 30.206, 30.21, 31.02, 31.05, 31.06, 31.07, 31.08, 31.12, 31.13, 31.18, 31.23, 88.31 and 144.025(2)(b), Wis. Stats. and made applicable by 33 U.S.C. sec. 1341(d);

(g) Any other appropriate requirements of state law as provided in 33 U.S.C. sec. 1351(d).

13. The proposed Confined Disposal Facility (CDF) expansion will be located in Great Lakes water under NR 102.12(1)(a), Wis. Admin. Code.

14. Section NR 102.04(4)(a) provides as follows:

**STANDARDS FOR FISH AND AQUATIC LIFE.** Except for natural conditions, all waters classified for fish and aquatic life shall meet the following criteria:

(a) Dissolved oxygen. Except as provided in par. (e) and s. NR 104.02(3), the dissolved oxygen content in surface waters may not be lowered to less than 5 mg/L at any time.

There are currently violations of the above standard. Existing violations can be attributed, in part, to "natural conditions." There will be more violations of the above standard as a result of CDF expansion. The increased number of violations will be as a result of CDF expansion and not as a result of "natural conditions" within the meaning of sec. NR 102.02(2), Wis. Admin. Code.

15. The WES Model does not have a sufficient credibility upon which to make engineering decisions. Further, the WES Model failed to prove its credibility when matched with real-world observed data in connection with a confined verification and calibration exercise. As a result, the WES Model results do not provide "reasonable assurance" within the meaning of sec. NR 299.04(1), Wis. Admin. Code that the above-referenced standard for DO will be met.

16. This Conclusion of Law is made in the event that the Finding relating to the adequacy of the WES Model is reversed. The predicted increase in DO standard violations indicated in the WES Model would not exceed the allowable "level of nonattainment of the dissolved oxygen criterion of one day per year" as set forth in sec. NR 102.05(2)(b), Wis. Admin. Code.

17. There is not "reasonable assurance" in the record that sec. 29.415, Stats., relating to the protection of endangered resources will be complied with in connection with the CDF expansion proposal. Section 29.415, Stats., is an "appropriate requirement of state law" within the meaning of sec. 299.04(7), Wis. Admin. Code.

18. The waters in which the CDF is to be built are subject to the water quality standards set forth in sec. 102.04, Wis. Admin. Code, subject to the variances set forth in secs. 104.24 and 104.24(4) and (5), Wis. Admin Code, which provide as follows:

(4) Green Bay is used for public water supply, recreation, commercial and recreational fishing, industrial cooling water, and waste assimilation. The waters of Green Bay, except as provided below, shall meet the standards for fish and aquatic life and recreational use.

(5) Green Bay waters southeasterly from the navigation channel and southerly from the north line of Brown County shall from January 1 to April 1 annually meet the standards for recreational use and fish and aquatic life except that the dissolved oxygen shall not be lowered to less than 2 mg./l at any time.

There is "reasonable assurance" that the winter standard will be met.

19. There is "reasonable assurance" in the record that all other state water quality standards set forth in sec. NR 299.04, Wis. Admin. Code will be complied with in connection with the proposed CDF expansion.


20. The Division does not have jurisdiction or authority to rule on the validity of a properly promulgated administrative code provision. Sec. 227.40(1) and 227.45(4), Stats

#### ORDER

Wherefore, IT IS HEREBY ORDERED that Water Quality Certification for the proposed CDF expansion be DENIED, for the reasons set forth above.

Dated at Madison, Wisconsin on July 14, 1997.

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By   
JEFFREY D. BOLDT  
ADMINISTRATIVE LAW JUDGE